

THE BUTTERFLIES (LEPIDOPTERA) OF EAST AND WEST WALLABI ISLANDS, WESTERN AUSTRALIA

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Abstract

Nine species of butterfly are recorded from East and West Wallabi Islands in the Houtman Abrolhos, Western Australia. Seven of these, *Trapezites argenteornatus insula* (Waterhouse), *Belenois java teutonia* (Fabricius), *Danaus chrysippus petilia* (Stoll), *Vanessa itea* (Fabricius), *Junonia villida calybe* (Godart), *Theclinesthes serpentata serpentata* (Herrich-Schäffer) and *Zizina labradus labradus* (Godart), are recorded from West Wallabi I. Five species, *T. a. insula*, *D. c. petilia*, *Vanessa kershawi* (McCoy), *T. s. serpentata* and *Neolucia agricola occidentis* Waterhouse & Lyell, are recorded from East Wallabi I. Their status on the islands is discussed.

Introduction

The islands of the Houtman Abrolhos are located between 60 and 80 km off the mid-west coast of Western Australia, west of Geraldton. They are divided into four distinct groups: the isolated North Island; the Wallabi group; the Easter group; and the Pelsaert group. In October 1997 we visited the two largest islands in the archipelago, West Wallabi I. (28°27'S, 113°42'E) and East Wallabi I. (28°26'S, 113°44'E), to survey the lepidopteran fauna. Prior to our visit the only butterfly recorded from the islands was the Silver-spotted Skipper, *Trapezites argenteornatus insula* (Waterhouse) (Common and Waterhouse 1981, Dunn and Dunn 1991).

East Wallabi I. lies little more than a kilometre to the north-east of West Wallabi I. Both islands are low and flat, their highest points being 15 m. They are physiographically very similar in that both have large areas of exposed pavement limestone, as well as consolidated and unconsolidated dunes. West Wallabi alone though has extensive areas of shell grit and guano-rich soils where shearwaters nest. The saltbush *Atriplex paludosa* (Chenopodiaceae) is dominant in these areas (Storr 1965). There are no shearwater colonies on East Wallabi, where the beds of shell grit are much less extensive. Although East Wallabi (330 ha) is smaller than West Wallabi (619 ha), its vegetation is more diverse; Storr (1965) has pointed out that this can only be due to the presence of guano on West Wallabi I. The mean average rainfall for the Abrolhos is about 300 to 400 mm, most of it falling from May to September (Storr *et al.* 1986).

Methods

Both West and East Wallabi Is were surveyed over a three-day period from 5-7 October 1997. Throughout this time the weather was warm and sunny, with only light patchy cloud. Winds were at first north-easterly, later turning south-westerly. Prior to our arrival, strong off-shore easterlies had predominated.

Extensive searches were conducted across both islands and each of the major habitat types was carefully explored. Hilltops and dune ridges were checked for hill-topping butterflies. Known butterfly foodplants were examined for signs of larval activity. Botanical nomenclature follows Green (1985).

Results

The results of our survey are summarised in Table 1. Voucher specimens are lodged in the Insect Collection of the Department of Conservation and Land Management, Perth WA.

Table 1. Butterflies recorded from West Wallabi and East Wallabi Islands.

FAMILY	SPECIES	WEST WALLABI	EAST WALLABI
Hesperiidae	<i>Trapezites argenteornatus insula</i>	•*	•
Pieridae	<i>Belenois java teutonia</i>	•*	
Nymphalidae	<i>Danaus chrysippus petilia</i>	•*	•*
	<i>Vanessa kershawi</i>		•*
	<i>V. itea</i>	•*	?°
	<i>Junonia villida calybe</i>	•*	
Lycaenidae	<i>Neolucia agricola occidens</i>		•*
	<i>Theclinesithes s. serpentata</i>	•*	•*
	<i>Zizina l. labradus</i>	•*	
TOTALS	9	7	5

Note:- * = new record; ° = signs of larvae, but no adults or larvae seen.

Records for West Wallabi Island

HESPERIIDAE

Trapezites argenteornatus insula (Waterhouse).

Although widespread, this species was generally uncommon on the island. Six specimens were collected, all in the vicinity of the foodplant *Acanthocarpus preissii* (Dasypogonaceae), growing on the limestone pavement. Three hatched pupal cases were located in typical shelters on the foodplant.

PIERIDAE

Belenois java teutonia (Fabricius)

This species was observed (but not collected) on a number of occasions. Individuals were most often seen flying across the island or circling around prominent *Pittosporum phylliraeoides* and *Myoporum insulare* shrubs.

NYMPHALIDAE

Danaus chrysippus petilia (Stoll)

D. c. petilia was uncommon, with individuals seen on only four occasions. One specimen was taken on top of the highest consolidated dune, at Eagle Point, near the south-western corner of the island.

Vanessa itea (Fabricius)

No adults were encountered. However, numerous larval shelters on nettles (*Urtica urens*: Urticaceae) growing in sheltered sites under large *Pittosporum phylliraeoides* shrubs indicated recent activity. Two mid-stage larvae were collected and reared to adults. Another foodplant, the annual *Parietaria debilis* (Urticaceae) (Powell 1993), is recorded from this and other islands in the Abrolhos. We could find only a few poorly developed plants, on the limestone pavement; these did not show any signs of use by *V. itea* larvae.

Junonia villida calybe (Godart).

This species appeared to be very uncommon on the island, with only one specimen seen, on flat limestone pavement on the eastern side of the island. It was not collected.

LYCAENIDAE

Theclinesthes serpentata serpentata (Herrich-Schäffer)

This species was particularly common in low-lying *Atriplex paludosa* saltbush areas in the northern part of the island, east of Pelican Point.

Zizina labradus labradus (Godart)

Two specimens were obtained, both flying behind the unconsolidated beach dunes at Pelican Point on the western side of the island.

Records for East Wallabi Island

HESPERIIDAE

Trapezites argenteoornatus insula (Waterhouse).

This skipper was very common on the peninsula, particularly on the northern shoreline opposite Turtle Bay, where the foodplant *Acanthocarpus preissii* was abundant. Individuals were observed feeding at the flowers of *Scaevola crassifolia* (Goodeniaceae) and *Westringia dampieri* (Lamiaceae).

NYMPHALIDAE

Danaus chrysippus petilia (Stoll)

No specimens were obtained, but one butterfly was seen flying over dense low heathland near the centre of the island.

Vanessa kershawi (McCoy)

Only one individual was encountered, captured feeding on the flowers of *Scaevola crassifolia* on the peninsula near Fish Point.

Vanessa itea (Fabricius)

No adults or larvae were seen. However, some nettles (*Urtica urens*) near Fish Point were stripped of some of their leaves, suggesting the presence of larvae. The other foodplant, *Parietaria debilis*, is also recorded from this island (Storr 1965) but no specimens were found.

LYCAENIDAE

Theclinesstes serpentata serpentata (Herrich-Schäffer).

T. s. serpentata was fairly common on the southern side of the island, particularly near the airstrip.

Neolucia agricola occidens Waterhouse and Lyell.

This species was found mainly near Eagle Hill, on the south-eastern side of the island. Adults congregated around small and very compact *Bossiaea spinescens* (Papilionaceae) shrubs (previously *Bossiaea rufa* var. *foliosa*; Storr 1965). These shrubs were most numerous along the narrow ecotone between the consolidated dunes and the pavement limestone.

Discussion

The breeding of two species on the islands was confirmed by the finding of hatched pupal cases of *T. a. insula* and larvae of *V. itea*. The breeding of a further two species is strongly implied. On West Wallabi I., *T. s. serpentata* congregated around a likely foodplant, *Atriplex paludosa*. On East Wallabi I., *N. a. occidens* was habitually seen around *Bossiaea spinescens* shrubs. In Queensland larvae of *N. a. agricola* feed on *Bossiaea carinalis* (Common and Waterhouse 1981) and *Bossiaea rhombifolia* (Monteith and Yeates 1988).

No evidence of breeding was observed for any of the remaining species. However, there is a strong possibility that *B. j. teutonia* may do so, since one of its known foodplants, *Capparis spinosa* (Capparaceae) (Common and Waterhouse 1981), occurs on East and West Wallabi Is (Storr 1965). Even though *J. v. calybe* was observed only once, *Plantago varia* (Plantaginaceae) is a likely foodplant on the islands. For *D. c. petilia* and *V. kershawi* the position is more doubtful. No known foodplant of these species occurs on either of the Wallabi islands but plant species belonging to the foodplant families of both do occur.

The final species, *Z. l. labradus*, is of particular interest. On West Wallabi I., where we collected it, no native plant species in either of its known foodplant families, Fabaceae and Mimosaceae, is recorded. Collected specimens may have travelled from nearby East Wallabi I., where plant species in both the Fabaceae and the Mimosaceae occur.

An ability to travel between the Abrolhos Islands and the mainland will allow the presence on the islands of species that cannot maintain permanent populations there. Mobile butterfly species are able to cross stretches of ocean of much greater extent than the 60-80 km between the Abrolhos Islands and the mainland (Gibbs 1980). Of the nine species we recorded on the Abrolhos, five are known to be highly mobile. *B. j. teutonia*, *V. kershawi*, *V. itea* and *J. v. calybe* are migratory (Common and Waterhouse 1981). *D. c. petilia*, although less known as a migratory species, clearly has

the ability to travel long distances. Common and Waterhouse (1981) note that it has been taken in Tasmania, where it is not established. Bruce Ayling (pers. comm.) has reported seeing *D. c. petilia* on the Abrolhos on occasions after periods of easterly winds. Easterly winds had been blowing prior to our arrival on the islands and might have accounted for our recording this and other mobile species.

We surmise that *T. a. insula*, *N. a. occidentis* and *T. s. serpentata* are permanent residents on the Abrolhos, where they breed and maintain stable populations, whereas the occurrence of *B. j. teutonia*, *D. c. petilia*, *V. kershawi*, *V. itea* and *J. v. calybe* is probably dependent on at least some degree of transit from the mainland. Even though *V. itea* breeds on the Abrolhos, it is unlikely to persist there in summer and autumn, when its annual foodplants are not available. Here, as on the adjacent mainland, its occurrence probably depends on migration from other regions of Australia. Some summer breeding on the nearby mainland may be possible in a few places where introduced perennial plants in the Urticaceae are established (see Powell 1997). More observations of *Z. l. labradus* would be needed in order to suggest what its status on the Abrolhos might be.

Nearly all the species recorded here also occur on other islands off the west coast of Western Australia. We have found *B. j. teutonia* on South Muiron I., 17 km north-east of North-West Cape (Williams *et al.* 1996). It is also known from Bernier I. (Dunn and Dunn 1991) and Dorre I. (Williams *et al.* 1998). *T. a. argenteoornatus*, *D. c. petilia*, *V. kershawi*, *V. itea*, *J. v. calybe*, *T. s. serpentata* and *Z. l. labradus* are recorded from one or more of Garden, Rottneest, Bernier and Dorre Is (Williams 1997, Williams *et al.* 1998). Only *N. a. occidentis* has not previously been recorded from any other west-coast island.

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